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REMARKS

The Examiner will note that the claims have been amended to specify that the amount of oxygenate is from 100 to 10,000 wppm. Support for this change is found in paragraph 34. The claims have also been amended to specify an alumina or alumina-containing binder. Support for this change is found in paragraph 31.

Election / Restriction Requirement

The Examiner issued the following restriction requirement.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-54, drawn to a process for preparing a lubricating oil basestock, classified in class 208, subclass 89.
- II. Claims 55 and 56, drawn to a lubricating oil basestock, classified in class 208, subclass 18.

The inventions are distinct, each from the other because of the following reasons:

Inventions of Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product can be made by another and materially different process such as hydrotreating followed by solvent dewaxing.

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Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Applicants' Response

Applicants affirm the election of Group I, claims 1-54 with traverse. It is urged that the search for the Group II invention would not be unduly burdensome.

The Examiner's Rejection

Claims 1-8, 10-12, 14-25, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/07538 A1 in view of LaPierre et al. (US 4,431,519).

The Examiner's Grounds

"The WO reference discloses a process for preparing a lubricating base oil. The process comprises hydrotreating a waxy feed such as an F-T product. The lower boiling fractions are then removed from wax fractions. The wax fractions are then subjected to catalytic dewaxing thereby obtaining a lubricating base oil product. The hydrotreating catalyst contains Group 6, 9, and/or 10 metals. Hydrotreating conditions include temperatures ranging from 250° to 400°C and pressures ranging from 0.5 to 20 MPa. The dewaxing catalyst comprises a molecular sieve such as ZSM-48 and a metal such as platinum. The catalyst is reduced before use. Dewaxing conditions include temperatures ranging from 200° to 500°C, pressures ranging from 10 to 200 bar (1000 to 20000 kPa),

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space velocities ranging from 0.1 to 10, and hydrogen to oil ratios ranging from 100 to 2000. See page 2, line 25 through page 6, line 8 and page 7, line 18 through page 10, line 16."

"The WO reference does not disclose contacting the dewaxing catalyst with an oxygenate."

"The LaPierre reference discloses a dewaxing process in which a lubricating oil and hydrogen contact a dewaxing catalyst at temperatures ranging from 550° to 1100°F (288° to 593°C) and pressures ranging from 100 to 3000 psig (689 to 20684 kPa), LHSV values ranging from 0.1 to 10, and a hydrogen to hydrocarbon mole ratio between 1 and 20. The catalyst is contacted with an oxygenate such as an alcohol or ether to increase the activity of the catalyst. This oxygenate is converted into oxygenated products and water. Therefore, the catalyst is also contacted with water. See column 1, line 64 through column 3, line 31."

"It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of the WO reference by contacting the dewaxing catalyst with an oxygenate as suggested by LaPierre because the activity of the catalyst will be increased. One would contact the catalyst with the oxygenate for any time that is effective in achieving the result of increased catalyst activity."

"Regarding the hydrotreating conditions, one having ordinary skill in the art at the time the invention was made would adjust such conditions in order to obtain an effectively hydrotreated feed."

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Applicants' Response

The WO 01/107538 primary reference teaches that the binder material be essentially alumina free (page 2, lines 31-33). Applicants' amended claim specifies an alumina or alumina-containing binder. The primary reference also teaches a dealuminated zeolite (page 2, line 31). Dealumination is achieved by fluorosilicate salt treatment (p 8, line 2301 seq.). Applicants' examples are to ZSM-48 which has not been dealuminated.

LaPierre (US 4, 431, 519) is relied on for teaching oxygenate treatment. In LaPierre, methanol/ethanol is added for the purpose of supplying heat (see abstract, col. 1, line 67-col. 2, line 4). Pulsing is necessary and the amounts are specified in col. 3, lines 23-31.

In contrast, applicants' addition of oxygenate is to selectively activate the catalyst as specified in the claims. The amounts of oxygenate in applicants' amended claims (100-10,000 wppm) would not be sufficient to meet exothermic heat required by LaPierre.

The Examiner's Rejection

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/07538 A1 in view of LaPierre et al. (US 4,431,519) as applied to claim 1 above, and further in view of GB 2109402 A:

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The Examiner's Grounds

"The previously discussed references do not disclose that the oxygenate is water."

"The GB 2109402 reference discloses that the activity of zeolite catalysts used in dewaxing processes can be maintained by contacting the catalyst with water or a precursor of water such as an alcohol. See page 1, lines 62-87 and page 2, line 112 through page 3, line 10."

"It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by using water as the oxygenate instead of the compounds disclosed by LaPierre as suggested by the GB reference because water performs equivalently to the alcohols disclosed by LaPierre and is less expensive than alcohols."

Applicants' Response

Claim 9 is dependent on claim 1 and is patentable over WO 01/07538 and LaPierre for the reasons noted above. Moreover, it is unlikely that one would consider the oxygenates of LaPierre and the water of GB 2109402 as interchangeable. If the oxygenate in LaPierre is added as a heat source from burning (exothermic reaction), water would not be considered as equivalent.

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The Examiner's Rejection

Claims 13 and 26 are rejected under 35 U.S.C. 103(a) being unpatentable over WO 01/07538 A1 in view of LaPierre et al. (US 4,431,519) as applied to claims 1, 2, 17, and 18 above, and further in view of Kresge et al. (US 5,837,639).

The Examiner's Grounds

"The previously discussed references do not disclose a hydrofinishing step."

"The Kresge reference the hydrofinishing of hydrocarbon streams such as lube fractions using a catalyst that comprises MCM-41. Conditions include temperatures less than 350°C, pressures of 100 to 3000 psig, space velocities of 0.1 to 10 hr⁻¹, and hydrogen to hydrocarbon molar ratios ranging from 0.1 to 100. See column 15, line 53 through column 16, line 25."

"It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the previously discussed references by hydrofinishing the dewaxed stream as suggested by Kresge because a product with improved properties will result."

Applicants' Response

Even assuming arguendo that hydrofinishing of dewaxed products is known, claims 13 and 26 are dependent on claims 1-2 and 17-18, respectively and are patentable over the cited references for the reasons noted above for WO 01/07538 and LaPierre for the reasons noted above.

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The Examiner's Rejection

Claims 30-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/07538 A1 in view of LaPierre et al. (US 4,431,519) and Kresge et al. (US 5,837,639).

The Examiner's Grounds

"The WO reference discloses a process for preparing a lubricating base oil. The process comprises hydrotreating a waxy feed such as an F-T product. The lower boiling fractions are then removed from wax fractions. The wax fractions are then subjected to catalytic dewaxing thereby obtaining a lubricating base oil product. The hydrotreating catalyst contains Group 6, 9, and/or 10 metals. Hydrotreating conditions include temperatures ranging from 250° to 400°C and pressures ranging from 0.5 to 20 MPa. The dewaxing catalyst comprises a molecular sieve such as ZSM-48 and a metal such as platinum. The catalyst is reduced before use. Dewaxing conditions include temperatures ranging from 200° to 500°C, pressures ranging from 10 to 200 bar (1000 to 20000 kPa), space velocities ranging from 0.1 to 10, and hydrogen to oil ratios ranging from 100 to 2000. See page 2, line 25 through page 6, line 8 and page 7, line 18 through page 10, line 16."

"The WO reference does not disclose contacting the dewaxing catalyst with an oxygenate and not disclose a hydrofinishing step."

"The LaPierre reference discloses a dewaxing process in which a lubricating oil and hydrogen contact a dewaxing catalyst at temperatures ranging from 550° to 1100°F

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(288° to 593°C) and pressures ranging from 100 to 3000 psig (689 to 20684 kPa), LHSV values ranging from 0.1 to 10, and a hydrogen to hydrocarbon mole ratio between 1 and 20. The catalyst is contacted with an oxygenate such as an alcohol or ether to increase the activity of the catalyst. This oxygenate is converted into oxygenated products and water. Therefore, the catalyst is also contacted with water. See column 1, line 64 through column 3, line 31."

"The Kresge reference the hydrofinishing of hydrocarbon streams such as lube fractions using a catalyst that comprises MCM-41. Conditions include temperatures less than 350°C, pressures of 100 to 3000 psig, space velocities of 0.1 to 10 hr⁻¹, and hydrogen to hydrocarbon molar ratios ranging from 0.1 to 100. See column 15, line 53 through column 16, line 25."

"It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of WO reference by contacting the dewaxing catalyst with an oxygenate as suggested by LaPierre because the activity of the catalyst will be increase. One would contact the catalyst with oxygenate for any time that is effective in achieving the result of increased catalyst activity."

"It also would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the previously discussed references by hydrofinishing the dewaxed stream as suggested by Kresge because a product with improved properties will result."

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"Regarding the hydrotreating conditions, one having ordinary skill in the art at the time the invention was made would adjust such conditions in order to obtain an effectively hydrotreated feed."

Applicants' Response

The WO 01/0758, LaPierre and Kresge references have been discussed above. Applicants' amended claims specifying alumina or alumina-containing binders and oxygenate in amounts from 100 to 10,000 wppm to selectivate a dewaxing catalyst have been discussed above. The amended claims are patentable over the cited combination of references for the reasons cited above.

The Examiner's Rejection

Claims 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/07538 A1 in view of GB 2109402 A.

The Examiner's Grounds

"The WO reference discloses a process for preparing a lubricating base oil. The process comprises hydrotreating a waxy feed such as an F-T product. The lower boiling fractions are then removed from wax fractions. The wax fractions are then subjected to catalytic dewaxing thereby obtaining a lubricating base oil product. The hydrotreating catalyst contains Group 6, 9, and/or 10 metals. Hydrotreating conditions include temperatures ranging from 250° to 400°C and pressures ranging from 0.5 to 20 MPa.

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The dewaxing catalyst comprises a molecular sieve such as ZSM-48 and a metal such as platinum. Dewaxing conditions include temperatures ranging from 200° to 500°C, pressures ranging from 10 to 200 bar (1000 to 20000 kPa), space velocities ranging from 0.1 to 10, and hydrogen to oil ratios ranging from 100 to 2000. See page 2, line 25 through page 6, line 8 and page 7, line 18 through page 10, line 16."

"The WO reference does not disclose contacting the dewaxing catalyst with an oxygenate such as water."

"The GB 2109402 reference discloses that the activity of zeolite catalysts used in dewaxing processes can be maintained by contacting the catalyst with water or a precursor of water such as an alcohol. See page 1, lines 62-87 and page 2, line 112 through page 3, line 10."

"It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the WO 01/07538 A1 reference by contacting the catalyst with water as suggested by the GB reference because water the activity of the catalysts will be maintained."

Applicants' Response

The amended claims with regard to WO 01/07538 has been discussed above. With regard to GB 2,109,402, this reference teaches water additions are in the range 0.1 to 20 volume percent of the feed (page 4, lines 2-24). The water is for prolonging catalyst life (page 3, lines 116 to 120). In the example, the amount of water co-fed as 5 vol% of the hydrocarbon feed rate (page 5, lines 27-28).

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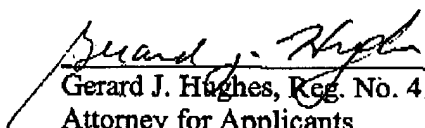
In contrast applicants add water to selectivate the catalyst and the amount required for selectivation (100 to 10,000 wppm) is much lower than the amounts of GB 2,109,402.

For the reasons set forth above, it is urged that applicants have made a patentable advance in the art. With regard to the provisional obviousness-type double patenting rejection, applications may file a terminal disclaimer at an appropriate time.

In view of the amended claims and the arguments set forth above, it is urged that applicants have overcome the cited rejections and that applicants have made a patentable advance in the art. Favorable action is solicited.

Respectfully submitted:

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